H. St John.

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JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

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FURTHER NOTES ON CHANGES IN A SALT MARSH DURING RECLAMATION

WALTER DEANE

Ten years have passed since I published a paper on floral changes in a salt marsh during reclamation.[1] At that time I had opportunity for a long investigation. Since then I have visited the area at intervals and recorded my observations.

The locality is on the banks of Charles River in Cambridge, Massachusetts, a few miles above its mouth, and was formerly subjected to tidal action, but, since the building of a dam near the mouth of the river in 1908, the water has been practically fresh, and there has been no flooding. The character of the marsh is practically the same as it was in 1915. A rough road, used rarely by horseback riders, runs along the west border. The marsh will soon be made over into a city park and its entire character will be changed for the first time. It will have no interest for the botanist, and this is my apology for adding a little to my former paper.

As I have wandered over the marsh at intervals, I have noticed the disappearance of almost all traces of the saline plants that at one time were abundant, while the upland plants increase and take their places. I can now record only three of the saline species that were still lingering in 1915. *Atriplex patula* L., var. *hastata* (L.) Gray, which was scattered over the marsh in 1915, seems to have been reduced to a single patch in the center of the marsh, where I saw it on October 23, 1924. *Suaeda linearis* (Ell.) Moq. was still lingering on the west side, where a few patches were seen on October 16, 1923. *Solidago sempervirens* L. still persists here and there over the marsh, as I saw scattered plants on September 22, 1923.

I have noticed but one salt marsh species not recorded before. On

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[1] RHODORA, Vol. 17, no. 203, November, 1915, 205–222.

September 22, 1923, I found a single plant of *Suaeda maritima* (L.) Dumont, fleshy and prostrate, with up-curving branches. Prof. M. L. Fernald tells me that this is distorted, but must be of this species. On October 23, 1924, I found near the same spot a cluster of the same species. The plants were distorted, but not prostrate.

As is quite natural, upland species continue to occupy the area and increase in number. One and the only instance, however, of the appearance of salt in a single locality I have observed recently. My notebook records the following fact. "May 10, 1925. There is an area of land at the north end of the marsh, some 20 or 30 feet long by five or six feet wide, where there are deposits of clear, white salt, very thinly covering the soil. The taste is very strong. The surface of the ground is free from vegetation." The salt soon disappeared and I did not see it again.

I will append a list of the upland species that have invaded the area of the marsh since 1915.

FLORA OF THE MARSH.

Andropogon scoparius Michx., var. *frequens* Hubbard. Abundant on the west side near the roadway, October 16, 1923.

Glyceria obtusa (Muhl.) Trin. Abundant in a ditch in the east center, September 22, 1923.

Bromus tectorum L. A small clump of six specimens on the western side, near the center, June 1, 1924.

Carex canescens L. One clump on the river bank at the eastern extremity, May 27, 1922.

Juncus canadensis J. Gay. Several plants at the northern end, October 23, 1924.

Smilax rotundifolia L. Abundant on the western border, October 16, 1923.

Iris versicolor L. A cluster of a dozen or so leaves on the border of wet ground at the northwestern end, October 23, 1924.

Salix fragilis L. Shrub at the north end on the border, in leaf, October 23, 1924 and May 13, 1925.

Populus nigra L., var. *italica* Du Roi. A single small tree on the west side of the marsh, on October 13, 1918, and a single tree on the river bank, on May 3, 1923.

Populus candicans Ait. A single small tree at the north end, on October 23, 1924.

Myrica carolinensis Mill. Abundant on the west border in good fruit. I collected it there on October 16, 1923.

Alnus incana (L.) Moench. Three shrubs about 15 feet high with leaves and old fruit, on the outer edge of the marsh by the river, May 2, 1922. A portion of the marsh had been recently burned over.

Lepidium apetalum Willd. A single plant on the west border of the marsh, October 13, 1918.

Pyrus Malus L. A very small tree on the northern border of the marsh, May 7, 1922.

Potentilla canadensis L. Northwest corner of the marsh, June 1, 1924.

Rubus idaeus L. Abundant on the border of the marsh on the western side; no fruit. October 16, 1923.

Rubus hispidus L. Running ovêr the grass on the western border, May 30, 1921, May 27, 1922. Two large patches, each some twenty feet in diameter, densely covering the ground on the nothern end of the marsh, October 23, 1924.

Rosa palustris Marsh. (*R. carolina* of Gray's Manual). Abundant in fruit on the west edge of the marsh, October 14 and 16, 1923 (Rydberg, Bull. Torr. Bot. Club xlvii, 50–51, 1920).

Robinia Pseudo-Acacia L. Several small trees at the northern end of the marsh, May 27, 1922 and October 23, 1924.

Callitriche heterophylla L. Stigma longer than the fruit and erect. In one of the old ditches intersecting the marsh, near the southern end, June 1, 1924.

Rhus glabra L. Large shrub, west border of marsh, October 13, 1918; and abundant at the north end, September 23, 1923. Shrubs in leaf only.

Acer saccharinum L. A small tree close to the border of the marsh at the north end, May 13, 1925.

Cephalanthus occidentalis L. A few plants growing in the water close to the shore of the river in a bay at the south end, September 22, 1923.

Lonicera Morrowi Gray. Two or three shrubs very near the edge of the marsh at the northern end, May 8 and 13, 1925.

Lonicera tatarica L. Sandy slope close to the marsh on the west side, May 7, 1921.

Symphoricarpos racemosus Michx., var. *laevigatus* Fernald. A vigorous shrub in full fruit at the northern end of the marsh, October 4, 1922.

Boltonia asteroides (L.) L'Hér. A cluster of plants on the northern edge of the marsh, September 22, 1923.

Aster novae-angliae L. Several plants in the northern portion, October 4, 1922; abundant there, September 22, 1923.

Aster novae-angliae L., var. *roseus* (Desf.) DC. Several plants in the northern portion, October 4, 1922; abundant there, September 22, 1923.

Aster multiflorus Ait. One plant in the center of the marsh, September 22, 1923. Some large plants at the north end, near the margin, October 23, 1924.

Aster puniceus L. A single specimen in the center of the marsh, September 22, 1923.

Arctium minus Bernh. Common in the northwestern portion of the marsh, October 16, 1923.

Total number of species and varieties observed on the marsh since 1915 and not observed before	39
Plants affecting saline habitats	1
Upland plants which have appeared since 1915	38

As the plants of saline habitats have been reduced almost to zero, it is interesting to note that it has taken a period of 17 years to bring about this change.

The plants enumerated above are in my herbarium. In the verification of some forms I have been assisted by Prof. M. L. Fernald and Mr. C. A. Weatherby, while in the collection of specimens I have been materially aided by Miss L. M. Brown.

Cambridge, Massachusetts.

ZINNIA VS. CRASSINA.

S. F. Blake.

The familiar garden plants popularly known as zinnia had borne the same botanical name unchallenged for a century and a quarter when, in 1891, Otto Kuntze[1] displaced *Zinnia* L. (1759) by *Crassina* Scepin (1758) on the ground of priority. The change was adopted by Porter and Britton (1894) and other writers in America, and for thirty years the name *Crassina* has been accepted by a considerable proportion of American botanists as the correct designation of the genus. Apparently not one of the botanists who have used this name, from Kuntze on, has ever examined the work in which it appeared. Scepin's doctoral thesis,[1] published at Leyden, appears to be now very rare. It is not at the Gray Herbarium, the New York Botanical Garden, the Missouri Botanical Garden, or the John Crerar Library, nor is it mentioned in the catalogs of the Arnold Arboretum, the C. G. Lloyd Library, the British Museum of Natural History, or the Royal Gardens at Kew. Kuntze himself, although he had access to good botanical libraries and did much original bibliographic work, took up the name only on the strength of the account of *Zinnia* and its synonyms given in Boehmer's edition of Ludwig's "Definitiones Generum Plantarum" (p. 190, 1760). The copy examined in the preparation of this note is in the Surgeon-General's Library at Washington.

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[1] Rev. Gen. Pl. **1:** 331. 1891.

To the extreme rarity of Scepin's paper and the consequent inability of botanists to consult it, is due not only the persistence of the name *Crassina* in American botanical literature, but also a curious misconception regarding its origin. In both editions of Britton & Brown's "Illustrated Flora" the genus is said to be named in honor of "Paul Crassus, an Italian botanist of the sixteenth century." This statement is evidently taken from Wittstein's "Etymologisch-botanisches Handwörterbuch," p. 235 (1856), which contains the following paragraph: "Crassina Scop. (Compositae). Nach Paul Crassus; schrieb: De Lolio, Bologna 1591." The source of Wittstein's explanation of the name is not evident,[2] but is surely not Scepin's paper, for in that (p. 22) the genus is said to be named in memory of Stephan Crascheninnikow, Professor of Botany at St. Petersburg, and companion of Gmelin and Steller in their Siberian and Kamchatkan travels. The extremely abbreviated generic name used by Scepin, which has so effectually concealed the identity of the botanist he sought to honor, was adopted, he says, "ne in leges a sedulo promotore Botanices Linnaeo statutas peccarem."

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[1] Scepin, Constantinus. Schediasma chemico-medicum inaugurale de acido vegetabili quod cum annotationibus botanicis . . . publico et amico examini sistit Constantinus Scepin e Wiatka Russus. Lugduni Batavorum, apud Gerardum Potuliet, 1758. Title page, pp. [1]-[6] (introduction), 1-44.—The name *Crassina* occurs on p. 22, where its derivation is explained, and on p. 42, where the description begins, continuing to p. 44.

[2] Not only Wittstein, but also De Candolle (Prodromus), Bentham & Hooker, and Durand (Index) wrongly attribute the name to Scopoli, evidently by a confusion between the abbreviations "Scep." and "Scop."

Scepin's name *Crassina* is effectively published under the provisions of the Vienna Rules, but not under those of the Rochester Code. Although the genus is described, no binomial is cited, nor can one be associated until 1759 with either of the two polynomial synonyms given. These are *Rudbeckia foliis oppositis &c.* of Zinn, Cat. Hort. Gotting. 409 (1757), and *Bidens, calyce oblongo, &c.* of Miller, Fig. Pl. **1**: 43. *pl. 64* (1756). Neither of these authors cites any previously published synonym associable with a binomial, and both references were first connected with a binomial name in 1759, when they were cited by Linnaeus (Syst. ed. 10, p. 1221) under *Zinnia peruviana.* The name *Crassina* must consequently be dropped by those who follow the Rochester Code. It would be eligible under the Vienna Rules, but its use is fortunately obviated by the fact that *Zinnia* was made a *nomen conservandum* in 1905.

At the time he adopted the name *Crassina,* Kuntze suggested that *Lepia* Hill might also be an earlier name than *Zinnia.* The first edition of Hill's Exotic Botany, where[1] the name (misquoted *Lejica* by Linnaeus in the second edition of the Species Plantarum, p. 1269. 1763) first appeared, is not in Washington. Mr. Alfred Rehder has examined the copy at the Arnold Arboretum and informs me that *Lepia* appears only as a generic name without reference to any previously published name, and is consequently only a hyponym under the Rochester Code. The preface of Hill's work is dated January 18, 1759, so that it probably appeared earlier than the 10th edition of the Systema Naturae (May–June 1759), in which *Zinnia* was published. Hill used[2] the name *Lepia* again in 1768, with the binomials *Lepia pauciflora* and *L. multiflora.* In the second edition of the Exotic Botany (p. 29, *pl. 29,* 1772) he adopted the name *Zinnia pauciflora,* used by Linnaeus in the second edition of the Species Plantarum, and added a final paragraph to his account of the plant: "Since the publication of the first edition of this work, Linnaeus saw the Plant and nam'd it Zinnia. Perhaps my name was fitter, but uniformity is so much better than strict propriety in this article, that I willingly subscribe to the Linnaean name." The followers of both the Vienna Rules and the Rochester Code can now do the same.

Bureau of Plant Industry, Washington, D. C.

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[1] "Exot. Bot. ed. 1. 29. *pl. 29.* 1759."

[2] Hort. Kew. 18. 1768.

FIFTH REPORT OF COMMITTEE ON FLORAL AREAS. PRELIMINARY LISTS OF NEW ENGLAND PLANTS—XXX.

THE sign + indicates that an herbarium specimen has been seen; the sign — that a reliable printed record has been found. An asterisk following either sign signifies that the species concerned, though native elsewhere in New England, is certainly known in the state specified only as an escape from cultivation.

TAXACEAE

	Me.	N. H.	Vt.	Mass.	R. I.	Ct.
Taxus canadensis L.	+	+	+	+	+	+

PINACEAE

	Me.	N. H.	Vt.	Mass.	R. I.	Ct.
Abies balsamea (L.) Mill.	+	+	+	+	+*	+
“ “ var. phanerolepis Fernald	+	+	+			
Chamaecyparis thyoides (L.) BSP.	+	+		+	+	+
Juniperus communis L.	+	+		+		+
“ “ var. depressa Pursh	+	+	+	+	+	+
“ horizontalis Moench	+	+	+	+		
“ virginiana L.	+	+	+	+	+	+
Larix decidua Mill.				+	—	+
“ laricina (Du Roi) Koch	+	+	+	+	+*	+
Picea Abies (L.) Karst.	+		+	+		+
“ canadensis (Mill.) BSP.	+	+	+	—	—*	—*
“ mariana (Mill.) BSP.	+	+	+	+	+	+
“ “ f. semiprostrata (Peck) Blake			—			
“ rubra (Du Roi) Dietr.	+	+	+	+	+	+
“ “ f. virgata Rehder				—		
Pinus Banksiana Lamb.	+	+	—	+*		
“ resinosa Ait.	+	+	+	+		+
“ rigida Mill.	+	+	+	+	+	+
“ Strobus L.	+	+	+	+	+	+
“ sylvestris L.	+			+	+	+
Thuja occidentalis L.	+	+	+	+	+*	+
Tsuga canadensis (L.) Carr.	+	+	+	+	+	+

Picea mariana, f. *semiprostrata* is an extreme “creeping alpine form . . . eight or ten decimeters long or more, with short crowded branches mostly fascicled toward the erect apex of the stem, and tiny fourgrooved glaucous needles 3–6 mm. long." It is to be expected on other high mountains beside Mt. Mansfield, from which it has been reported by Eggleston (Vt. Agric. Exp. Sta. Bull. 187. 162 (1915)) and Blake (RHODORA, xv. 200 (Nov., 1913)).

Picea rubra, f. *virgata* has the long and slender branches quite destitute of branchlets, paralleling in this respect a form of the Norway spruce ("snake spruce") long known in Europe. It is apparently known only from the original collection near Williamstown, Mass. (*George Walker*).

The European larch (*Larix decidua*) is reported as an escape from cultivation at eight localities in southeastern Massachusetts, Rhode Island, and in Connecticut. About the middle of the last century the Norway spruce (*Picea Abies*) was very popular for ornamental planting, and many cultivated trees survive in most parts of New England. It is reported as escaped in Maine, Vermont, Massachusetts, and Connecticut. The Scotch pine (*Pinus sylvestris*) has been much used in experiments in forestry and to some extent for ornament; it has spread from seed and become more or less well established at some 15 stations in Maine, Massachusetts, Rhode Island, and Connecticut.

In addition to these foreigners, certain coniferous trees native in northern New England have been planted and have occasionally established themselves in the southern portions of our area. *Abies balsamea* is found as an escape on Cape Cod (where at one time it was much planted), in Rhode Island, and in Connecticut. It is native in the northwestern corner of Connecticut and in the highlands of western and north central Massachusetts. *Picea canadensis* is reported as reproducing abundantly among birches in a sandy area adjoining a cemetery in Griswold, Conn. (*G. E. Nichols*, RHODORA, xxiv. 112 (June, 1922)), at Little Compton, R. I. (*J. F. Collins*), and as occurring at Brookline, Mass. *Pinus Banksiana* has been introduced and produced seedlings at Nantucket (*Bicknell*, RHODORA, xviii. 242 (Dec., 1916)). *P. resinosa* occurs spontaneously about Woods Hole, Mass., as a result of forest planting. At about the time when *Picea Abies* was most in vogue, *Thuja occidentalis* was also fashionable, especially for hedges; it has escaped at a number of stations in southeastern Massachusetts, Rhode Island, and Connecticut. Perhaps the reported station in central Massachusetts (Jackson, Cat. Pl. Worcester Co., Mass., 3rd Ed. 10 (1909)) also originated from planted trees. The species is apparently native in the towns of Canaan and Salisbury in northwestern Connecticut, but is not so reported from Berkshire Co., Mass., immediately north, where one would expect it (Hoffman, Proc. Boston Soc. Nat. Hist. xxxvi. 204 (1922)).

Geographically (excluding the above-mentioned extensions of natural ranges through cultivation) the species here considered may be grouped as follows, in accordance with the plan of our fourth report (RHODORA, xxvii. 56–65 (1925)).

GENERALLY DISTRIBUTED.—*Pinus Strobus.*

GENERALLY DISTRIBUTED EXCEPT IN SOUTHEASTERN MASSACHUSETTS.—*Larix laricina; Picea mariana.*

NORTHERN.—A. *Abies balsamea; Picea canadensis; P. rubra; Pinus resinosa; Taxus canadensis; Thuja occidentalis.*

B. *Abies balsamea*, var. *phanerolepis; Pinus Banksiana.*

Although *Picea canadensis* and *Thuja occidentalis* reach their best development in calcareous regions, their ranges run so far beyond those typical of calcicolous species in New England that they seem best placed in this group. Along the Maine coast, *Picea canadensis* is abundant in many places on or near rocks which are far from basic in their composition. *Thuja* is occasional, but less abundant under such conditions.

Pinus Banksiana is a local species in New England. It is known from five stations on the coast of eastern Maine, from the Dead River valley, Lake Umbagog, Thornton, N. H. and the headlands of Lake Champlain—all, it will be noted, at comparatively low elevations. From the data at hand, *Abies balsamea*, var. *phanerolepis* appears to have a similar range, except as to altitude. It occurs at five stations in the central and eastern portions of the Maine coast, and locally, at high elevations, in the White and Green Mountains.

NEITHER NORTHERN MAINE NOR SOUTHEASTERN MASSACHUSETTS, RATHER GENERAL ELSEWHERE.—*Tsuga canadensis.* We have seen only one specimen of *Tsuga canadensis* from Maine north of the 45th parallel of latitude; reports, however, carry it north to about the 46th, both in the eastern and western parts of the state. Its range, therefore, somewhat overlaps the boundaries of the "northern Maine" area, as laid down in our fourth report.

SOUTHEASTERN MASSACHUSETTS AND RATHER GENERAL ELSEWHERE, BUT NOT NORTHERN MAINE.—*Juniperus communis*, var. *depressa.*

Chiefly the three southern states.—*Chamaecyparis thyoides; Juniperus virginiana; Pinus rigida.* *Pinus rigida* occurs northward at low altitudes in the Champlain, Connecticut, Androscoggin, and lower Kennebec valleys, is found in the sandy areas around Lake Ossipee, N. H., and extends along the Maine coast as far east as Mt. Desert Island. Its range is intermediate between typical ranges of this and the preceding group. *Juniperus virginiana* likewise follows the Champlain and Connecticut valleys northward, and the Maine coast eastward as far as the mouth of the Kennebec and Monhegan Island (*J. R. Churchill*). It is said by Dame and Brooks (Trees of New England 26 (1902)) to reach the middle Kennebec valley.

Miscellaneous.—*Juniperus communis; J. horizontalis.* *Juniperus communis* occurs at scattered stations in southern New England and as far north as Gilead, Maine. It is not reported from Vermont. *J. horizontalis* is, except for a single station on the slopes of Mt. Equinox in Manchester, Vt. (*Mary A. Day*), confined to the immediate vicinity of the coast in Maine, New Hampshire, and extreme northeastern Massachusetts (Newbury). It is also reported from Templeton, Mass. (Jackson, Cat. Pl. Worcester Co., Mass. 10 (1909)), but this record is open to doubt and we have not been able to verify it.

C. A. Weatherby,
C. H. Knowlton,
R. C. Bean.

HEDEOMA HISPIDA IN CONNECTICUT.

Edwin H. Eames.

By incidentally traversing one of the comparatively sterile, limestone tracts in Salisbury, Connecticut, a very interesting series of revelations was started. Such areas are attractive in many ways but their flora is limited since few species can endure such hardships.

In this particular place, a pasture with a few scattering red cedars as the only woody vegetation, several small colonies of *Hieracium florentinum* All.—which seems to be getting frequent in such situations—and a few other species usually confined to such soils, together with a sparse growth of grasses, were several colonies of *Hedeoma hispida* Pursh.

Although this species has been found at several other stations in

New England and in eastern New York, the uniform habitat here was very peculiar. This feature was that of a highly restricted calciphile, growing in close contact with the native limestone either in crevices or usually in the shallow soil overlapping the borders of outcrop and occasionally spreading away a few feet.

Time did not permit further investigation until two months later, early September, 1925, when other colonies were found in several nearby pastures of like kind and for some two miles into Sheffield, Massachusetts. It probably extends much further since this Stockbridge limestone continues across the State well into Vermont and along the borders of New York.

As I was returning because of stormy weather, a brief stop in Canaan revealed it then in the Lime Rock region of Salisbury, while some two miles beyond, in Sharon, it was found more or less about most of the outcrops, here dolomitic, over a particularly favorable hilly area of hundreds of acres, just as it did at Salisbury. But here and there it also covered the glacial drift which smoothes the intervening areas and so generally covers the immense mass of rock throughout its geological limits.

It was in Sharon, particularly, that the plants on some broad acres assumed an unsuspected character, that of somewhat spherical plants composed of many stiff branches, to the extent of 35 or 40 in some cases and a foot or so tall and broad: wonderful tumble-weeds they might be during the high winds of Autumn, for this is elevated (to 860 ft.) and much exposed country.

But here, as elsewhere, the plants usually were simple or little branched, 3 or 4 to 10 rarely 12 inches tall. Entirely unbranched plants often become the tallest. At this late season wholly past flowering and mostly crisp-dried and brown.

Associated with the massive form was a profusion of *Verbena stricta* Vent. and upon the drift in another section the dominant thing was what is passing as *Polygala verticillata* L., var. *ambigua* (Nutt.) Wood, many acres of it and all without any seeming tendency toward the species itself, however much that tends to upset preconceived ideas.

This whole area of more than a square mile was more or less misty-gray with *Echium vulgare* L.

In Sharon Valley, beyond, was more *Hedeoma* while in another pasture of the same type was a profusion of *Carduus crispus* L., some of it fully six feet tall. The *Hedeoma* was noted at several points near the State line in Dutchess County, New York, in Northeast, Amenia and Dover, always on limestone as before, but seen only because of a few wayside observations while homeward bound in an effort to avoid prevailing rains. Further south, especially in Westchester County, New York, and at its southern limits in Connecticut at Ridgefield and parts of Danbury, this limestone is very little in evidence, being largely buried. Not one of the objective plants was seen in several trips. Working northward on several occasions the *Hedeoma* was found sparingly in Danbury and Bethel, about 47 miles from the Sheffield locality.

In Brookfield, next north, it was found exactly as at first, about most of the pasture ledges south of the village and also a carpet of it occupying a once cultivated old field adjoining. So, too, in scattered areas in New Milford and Kent. A little beyond, the formation ends, being connected with the main body of it through a pass in the mountains at Bulls Bridge to South Dover, New York, where great areas are very promisingly exposed. Two detached colonies were found there although many thousand acres remain for later examination. This in itself indicates the probability of recent introduction of the species. Until failure to find the plant here it had been found *in every favorable locality.*

All of this formation was, until the arrival of white settlers, well wooded just as some of it is today, and there was no suitable environment in the region. It seems to be an example of extraordinary dissemination by natural methods of an introduced species.

The surprising rapidity of this is apparent when it is understood that some of the localities noted have been for years more or less familiar to several close students of our flora. It has been shown that in the special habitat several other species have become similarly widespread locally, but no other equals the subject of these notes either in extent or numbers, whereas the native calciphiles have been reduced in numbers as well as congenial locations rather than otherwise.

Bridgeport, Connecticut.

The date of the February issue (unpublished as this goes to press) will be announced later.

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